

**PATENT**  
Attv. Dkt. AMAT/5351/CPI/L/B/PJS

PATENT  
I/LB/PJS

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Group Art Unit: 2818

Examiner: R. Berry

For: System and Method to Form a Composite Film Stack Utilizing Sequential Deposition Techniques

CERTIFICATE OF MAILING  
37 CFR 1.8

I hereby certify that this correspondence is being deposited on  
May 20, 2003 with the United States Postal Service as First  
Class Mail in an envelope addressed to: Commissioner for  
Patents, P.O. Box 1450 Alexandria, VA 22313-1450.

5-20-03 [Signature]  
Date Signature

Dear Sir:

## SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

The Applicants, and the Attorney who signs below on the basis of the information supplied by the inventor and the information in his file, submit herewith patents, publications, or other information of which they are aware, which may be material to the examination of this application and in respect of which there may be a duty to disclose in accordance with 37 CFR § 1.56.

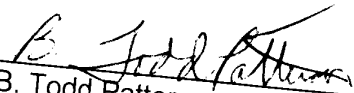
While the information submitted in this Supplemental Information Disclosure Statement may be material pursuant to 37 CFR § 1.56, it is not intended to constitute an admission that any patent, publication, or other information referred to therein is prior art for this invention unless specifically designated as such.

In accordance with 37 CFR § 1.97, this Supplemental Information Disclosure Statement is not to be construed as a representation that a search has been made or that no other possibly material information as defined under 37 CFR § 1.56(a) exists.

The patents and/or publications submitted herewith are set forth on the attached Form PTO-1449.

If the sum of \$180.00 is due under 37 CFR § 1.17(p) pursuant to § 1.97, the Commissioner is hereby authorized to charge this fee, and any other fee necessary to make this submission timely, to the Deposit Account No. 20-0782/APPM/5351/BTP.

Respectfully submitted,



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U.S. Department of Commerce, Patent and Trademark Office (PTO Form 1449 modified)		Docket No. AMAT/5351/CPI/L/B/ PJS	Serial No. 09/885,609
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		Applicant Mak, et al.	Confirmation No.: 5337
(Use several sheets if necessary)		Filing Date June 20, 2001	Group 2818
Examiner R. Berry			

## U.S. Patent Documents

*Examiner Initial		Document Number	Issue Date	Applicant(s) Name	Class	Subclass	Filing Date If Appropriate
	A1	6,548,424	04/15/03	Putkonen	438	785	04/16/01
	A2	6,534,395	03/18/03	Werkhoven, et al.	438	627	03/06/01
	A3	6,511,539	01/28/03	Raaijmakers, et al.	117	102	09/08/99
	A4	6,468,924	10/22/02	Lee, et al.	438	763	05/31/01
	A5	6,458,701	10/01/02	Chae, et al.	438	680	10/12/00
	A6	6,416,577	07/09/02	Suntoloa, et al.	117	88	06/07/00
	A7	6,399,491	06/04/02	Jeon, et al.	438	680	04/06/01
	A8	6,372,598	04/16/02	Kang, et al.	438	399	06/16/99
	A9	6,348,376	02/19/02	Lim, et al.	438	253	01/19/01
	A10	6,342,277	01/29/02	Sherman	427	562	04/14/99
	A11	6,333,260	12/25/01	Kwon, et al.	438	643	06/24/99
	A12	6,287,965	09/11/01	Kang, et al.	438	648	02/23/00
	A13	6,207,487	03/27/01	Kim, et al.	438	238	10/12/99
	A14	6,197,683	03/06/01	Kang, et al.	438	643	09/18/98

## Foreign Patent Documents

*Examiner Initial		Document Number	Date	Country	Class	Subclass	Translation	
							YES	NO
	B1	02/45167	06/06/02	WO	H01L	27/00	<input type="checkbox"/>	<input type="checkbox"/>
	B2	02/067319	08/29/02	WO	H01L	21/768	<input type="checkbox"/>	<input type="checkbox"/>
	B3	00/79576	12/28/00	WO	H01L	21/205	<input type="checkbox"/>	<input type="checkbox"/>

## OTHER ART

*Examiner Initial		Including Author, Title, Date, Pertinent Pages, Etc.
	C1	Rossnagel, et al. "Plasma-enhanced Atomic Layer Deposition of Ta and Ti for Interconnect Diffusion Barriers," J. Vacuum Sci. & Tech. B., Vol. 18, No. 4 (July 2000), pp. 2016-20
	C2	Ritala, et al. "Atomic Force Microscopy Study of Titanium Dioxide Thin Films Grown by Atomic Layer Epitaxy," Thin Solid Films, Vol. 228, No. 1-2 (15 May 1993), pp.32-35

Examiner	Date Considered
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication to applicant.

**INFORMATION DISCLOSURE STATEMENT BY APPLICANT**

(Use several sheets if necessary)

Examiner R. Berry

Docket No.

AMAT/5351/CPI/L/B/  
PJS

Serial No.

09/885,609

Applicant

Mak, et al.

Confirmation No.:

5337

Filing Date

June 20, 2001

Group

2818

**U.S. Patent Documents**

*Examiner Initial	Document Number	Issue Date	Applicant(s) Name	Class	Subclass	Filing Date If Appropriate
A1	6,042,652	03/28/00	Hyun, et al.	117	719	09/07/99
A2	5,526,244	06/11/96	Bishop	362	147	05/24/93
A3	2003/0082300	05/01/03	Todd, et al.	427	255.27	02/11/02
A4	2003/0072975	04/17/03	Shero, et al.	428	704	09/26/02
A5	2003/0049942	03/13/03	Haukka, et al.	438	778	08/22/02
A6	2003/0032281	02/13/03	Werkhoven, et al.	438	640	09/23/02
A7	2003/0031807	02/13/03	Elers, et al.	427	569	09/17/02
A8	2003/0013320	01/16/03	Kim, et al.	438	778	05/31/01
A9	2002/0187631	12/12/02	Kim, et al.	438	637	12/05/01
A10	2002/0187256	12/12/02	Elers, et al.	427	99	07/30/02
A11	2002/0182320	12/05/02	Leskela, et al.	427	250	03/15/02
A12	2002/0177282	11/28/02	Song	438	300	12/18/01
A13	2002/0135071	09/26/02	Kang, et al.	257	767	01/16/02
A14	2002/0121697	09/05/02	Marsh	257	751	04/30/02

**Foreign Patent Documents**

*Examiner Initial	Document Number	Date	Country	Class	Subclass	Translation	
B1	00/15865	03/23/00	WO			YES	NO
B2	99/29924	06/17/99	WO	C23C	16/00	<input type="checkbox"/>	<input type="checkbox"/>
B3	99/01595	01/14/99	WO	C23C	16/04	<input type="checkbox"/>	<input type="checkbox"/>
				C30B	25/14	<input type="checkbox"/>	<input type="checkbox"/>

**OTHER ART**

*Examiner Initial	Including Author, Title, Date, Pertinent Pages, Etc.
C1	Ritala, et al. "Growth of Titanium Dioxide Thin Films by Atomic Layer Epitaxy," Thin Solid Films, Vol. 225, No. 1-2 (25 March 1993) pp. 288-95
C2	Min, et al. "Chemical Vapor Deposition of Ti-Si-N Films With Alternating Source Supply," Mat. Rec. Soc. Symp. Proc. Vol. (1999)
Examiner	Date Considered

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U.S. Department of Commerce, Patent and Trademark Office (PTO Form 1449 modified)		Docket No. AMAT/5351/CPI/L/B/ PJS	Serial No. 09/885,609
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*Examiner Initial		Document Number	Issue Date	Applicant(s) Name	Class	Subclass	Filing Date If Appropriate
	A1	2002/0109168	08/15/02	Kim, et al.	257	295	01/30/02
	A2	2002/0106536	08/08/02	Lee, et al.	428	702	02/02/01
	A3	2002/0105088	08/08/02	Yang, et al.	257	774	10/31/01
	A4	2002/0081844	06/27/02	Jeon, et al.	438	680	02/28/02
	A5	2002/0076837	06/20/02	Hujanen, et al.	438	3	11/28/01
	A6	2002/0076507	06/20/02	Chiang, et al.	427	569	10/24/01
	A7	2002/0074588	06/20/02	Lee	257	306	07/06/01
	A8	2002/0061612	05/23/02	Sandhu, et al.	438	151	01/14/02
	A9	2002/0048635	04/25/02	Kim, et al.	427	331	08/08/99
	A10	2002/0021544	02/21/02	Cho, et al.	361	200	08/07/01
	A11	2002/0000598	01/03/02	Kang, et al.	257	301	07/26/01
	A12	2001/0054730	12/27/01	Kim, et al.	257	301	05/23/01
	A13	2001/0050039	12/13/01	Park	117	102	06/05/01
	A14	2001/0028924	09/27/01	Raaijmakers, et al.	365	200	02/22/01

**Foreign Patent Documents**

*Examiner Initial		Document Number	Date	Country	Class	Subclass	Translation	
							YES	NO
	B1	98/51838	11/19/98	WO	C23C	16/06	<input type="checkbox"/>	<input type="checkbox"/>
	B2	2001-111000	12/26/00	JP	H01L	29/00	<input type="checkbox"/>	<input type="checkbox"/>
	B3	2,355,747	05/02/01	GB	C23C	16/44	<input type="checkbox"/>	<input type="checkbox"/>

**OTHER ART**

*Examiner Initial		Including Author, Title, Date, Pertinent Pages, Etc.
	C1	Klaus, et al. "Atomically Controlled Growth of Tungsten and Tungsten Nitride Using Sequential Surface Reactions," Applied Surface Science, 162-163 (2000) 479-491
	C2	
Examiner		Date Considered

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